Multifunctional Core Materials for Airframe Primary Structures, Phase I

Completed Technology Project (2009 - 2009)

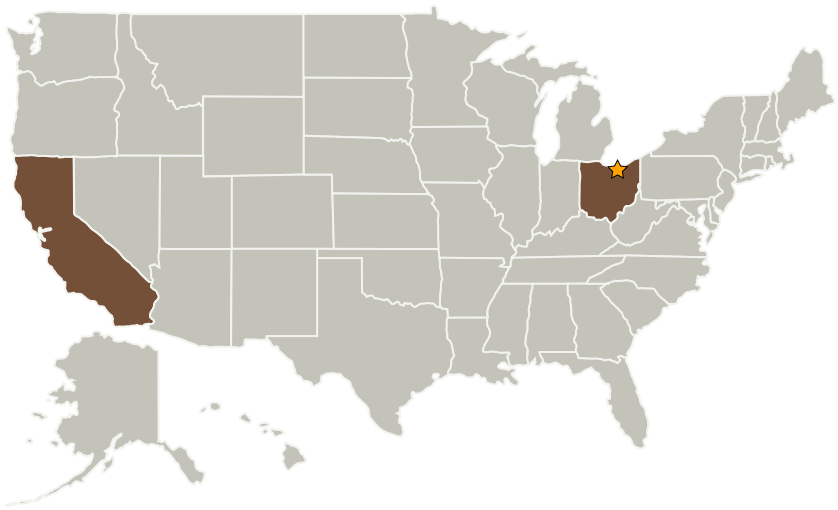
Project Introduction

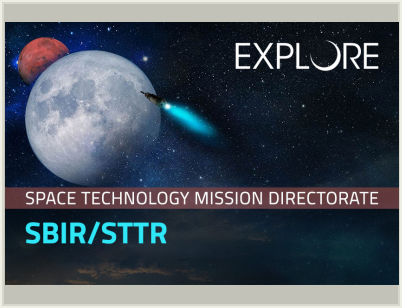
As the use of composite materials on commercial airlines grows the technology of the composites must grow with it. Presently the efficiency gained by the utilization of core materials on composite structures can not be implemented into commercial aviation primary structures due to the poor impact performance of commercially available core materials. Patz Materials and Technologies proposes to develop a new multifunctional composite core material for airframe primary structures. The new composite core material will combine high impact performance with low weight, high acoustical absorption and high mechanical strength to greatly improve the structural efficiency of future commercial airframes.

Anticipated Benefits

Potential NASA Commercial Applications: Commercial and Military Aerospace: Increasing the strength of core material will lend itself to the application of cored fuselages. Transportation Industry: Lowering the weight of a ground transportation vehicle such as a "big rig" trailer or even a commercial automobile would reduce fuel consumption and increase efficiency. Marine: Both commercial and military naval vessels have the same efficiency versus weight problem that plagues the other transportation industries reducing the weight of naval vehicles could

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Patz Materials & Technologies	Supporting Organization	Industry	Benicia, California

Primary U.S. Work Locations	
California	Ohio

Project Transitions

January 2009: Project Start

July 2009: Closed out

Closeout Summary: Multifunctional Core Materials for Airframe Primary Structures, Phase I Project Image

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

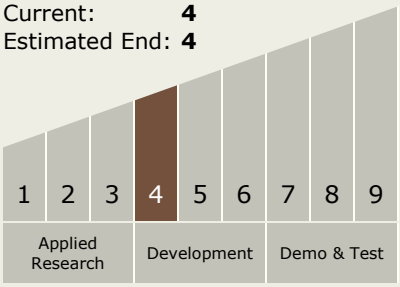
Carlos Torrez

Principal Investigator:

Nicholas Patz

Technology Maturity (TRL)

Start: **4**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.1 Materials
    - TX12.1.1 Lightweight Structural Materials